

DOCUMENT RESUME

ED 434 060

SO 031 034

TITLE Social--Population Growth Rate Learning Module. Development Education Program.

INSTITUTION World Bank, Washington, DC.

PUB DATE 1999-04-00

NOTE 64p.; For related learning modules, see SO 031 035-036.

AVAILABLE FROM Web site: <http://www.worldbank.org/depweb.english/modules/social/pgr/index>.

PUB TYPE Guides - Classroom - Teacher (052)

EDRS PRICE EDRS Price MF01 Plus Postage. PC Not Available from EDRS.

DESCRIPTORS *Critical Thinking; Demography; *Economic Development; Foreign Countries; Higher Education; *Physical Environment; Secondary Education; Social Indicators; *Social Problems; Social Studies; Student Educational Objectives; *Sustainable Development

IDENTIFIERS *Development Education

ABSTRACT

This learning module has two main goals: (1) to increase students' knowledge and understanding of the often complex relationship between sustainable development and the social, economic, and environmental conditions in a country; and (2) to strengthen students' abilities to perform statistical calculations, make and interpret maps, charts, and tables, as well as analyze and synthesize information to make inferences and generalizations and think critically when analyzing information, making decisions, and solving problems. This module focuses specifically on sustainable development and social conditions. The module's teaching units contain a full range of questions, activities, and exercises. The module is divided into the following sections: (1) "Introduction" (Point of View, Goals and Objectives, and Teaching the Learning Modules); (2) "Social" (brief introduction to social issues of sustainable development); (3) "Population Growth Rate Text"; (4) "Map--Average Annual Population Growth Rate (%), 1980-1"; (5) "Chart 1 - Total World Population by Country Income Group 1980, 1995, 2010"; (6) "Chart 2 - Population Growth Rate by Country Income Group, 1980-2010"; (7) "Charts 3.1 & 3.2 - Composition of Population in Low- and High-Income Economies, 1995"; (8) "Social Data Tables"; (9) "Population Growth Rate Photo Gallery"; (10) "Case Study 1 - A Day in the Life of a Traveling Healthcare Worker"; (11) "Population Growth Rate Research and Explore"; and (12) "Glossary." (BT)

* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *

Development Education Program

"Bringing sustainable development into the classroom"



Social - Population Growth Rate Learning Module

SO 031 034

World Bank

<http://www.worldbank.org/depweb/english/modules/social/pgr/index.htm>

PERMISSION TO REPRODUCE AND
DISSEMINATE THIS MATERIAL IN MICROFICHE
AND IN ELECTRONIC MEDIA FOR ERIC
COLLECTION SUBSCRIBERS ONLY.
HAS BEEN GRANTED BY

J. Feather

2A TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)

April 1999

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

☒ This document has been reproduced as
received from the person or organization
originating it.
☐ Minor changes have been made to
improve reproduction quality.

• Points of view or opinions stated in this
document do not necessarily represent
official OERI position or policy.

Table of Contents

Introduction

- Point of View
- Goals and Objectives
- Teaching the Learning Modules

Social

Population Growth Rate Text

- Exploring the Population Growth Rate Text

Map - Average Annual Population Growth Rate (%), 1980-1

- Exploring Population Growth Rate Map

Chart 1. Total World Population by Country Income Group 1980, 1995, 2010

- Exploring Chart 1: Total World Population by Country Income Group 1980, 1995, 2010

Chart 2. Population Growth Rate by Country Income Group, 1980-2010

- Exploring Chart 2. Population Growth Rate by Country Income Group, 1980-2010

Charts 3.1 & 3.2. Composition of Population in Low- and High-income Economies, 1995

- Exploring Charts 3.1 & 3.2. Composition of Population in Low- and High-income Economies, 1995

Social Data Tables

- Asia (South and East) and the Pacific
- Europe and Central Asia
- Middle East and North Africa
- North and Central America and the Caribbean
- South America
- Sub Saharan Africa

- Exploring the Social Data Tables

Population Growth Rate Photo Gallery

- Exploring Photograph 1 - Grandmother and Children, USA

Exploring Photograph 2 - Girls' Education, Mali

Case Study 1 - A Day in the Life of a Traveling Healthcare Worker

Exploring Case Study 1 - A Day in the Life of a Traveling Healthcare Worker

Population Growth Rate Research and Explore

Glossary



For Teachers

Point of View

The point of view of these learning modules is:

- Economic development is a means to a better life for people everywhere, especially those living in low- and middle-income countries.
- All countries, rich and poor, face environmental problems that are often closely linked with efforts to reduce poverty and improve people's standard of living.
- The relationship between economic development and the environment is complex, and reliable data are often scarce.
- Rising economic activity can both cause environmental problems and, with the right policies and institutions, help solve them.
- Greater economic strength and higher standards of living in all countries contribute to a healthy, vigorous world economy.
- The increased interdependence among countries that accompanies economic development can benefit all countries.
- This interdependence means that meeting the needs of people today without jeopardizing our ability to meet the needs of future generations is an issue that affects all people in all countries.

Goals and Objectives

The learning modules have two main goals:

- to increase students' knowledge and understanding of the often complex relationship between sustainable development and the social, economic, and environmental conditions in a country;
- to strengthen students' ability to perform statistical calculations, to make and interpret maps, charts, and tables,; to analyze and synthesize information to make inferences and generalizations; and to think critically when analyzing information, making decisions, and solving problems.

As a result of using these learning modules, students should be able to:

- recognize basic areas of social, economic, and environmental concern that affect people in all countries;

- compare and contrast social, economic, and environmental conditions in developing and industrial countries;
- demonstrate an understanding of the relationships between population growth rate, GNP per capita, and access to clean water;
- make inferences from statistics about living conditions, levels of economic development, and issues of sustainable development;
- express opinions about sustainable development and use statistics to support them.

Teaching the Learning Modules

This Teaching Guide has teaching units to accompany each learning module. These teaching units contain a full range of questions, activities, and exercises. You can get answers by clicking on the Answers icon.

Begin teaching each indicator by discussing the definition of the indicator, then continue with the map, text, charts and graphs, data table, case studies, and photos.

Activities included here are not organized by increasing complexity.

The blank comparative data table is designed so that, in most cases, space is available for students to add more data if you wish to have them do so.

Social

This is a brief introduction to social issues of sustainable development. When you have finished reading, you can start exploring the Population Growth Rate learning module.

Social Sector

The goal of sustainable development is to improve living standards and the quality of people's lives, both now and for future generations. Social issues are an important piece of the development "puzzle."

The need for social services is universal

All people in a society must have access to certain basic goods and services in order to lead healthy, fulfilling and productive lives. Education and training must be available, so that everyone has the chance to earn a decent living and learn new skills. Girls must have the same opportunity as boys to go to school or to get jobs. Women must have access to basic family planning services and adequate health care and nutrition for themselves and their children. The elderly must receive the medical care, social security and pensions they need to support themselves as they grow older. Ensuring fair access to basic services is an essential task of governments around the world.

Local issues/global issues

Social concerns in one country can have impacts that reach beyond national borders. For example, unequal access to education or lack of job opportunities can lead people to migrate. This may cause profound changes in the country they leave, as it adjusts to the loss of certain groups. And the countries in which immigrants settle may face the challenges of increasing demands on educational and health care systems, as well as of integrating diverse groups into society. Increasingly, the social concerns of one country may affect other countries around the world.

Linking social sector issues with the economic and the environmental sectors

Social sector issues are closely linked to economic issues such as poverty. In any society, it is the poor who are least likely to receive adequate health care, education, and family planning services. Higher birth rates may result, making it difficult for these families to meet their basic needs and break out of the cycle of poverty. Social issues are also linked with environmental concerns. In many countries, contaminated water and polluted air are responsible for an increase in water-borne diseases and respiratory problems, all of which place an extra burden on local health care systems.

It is only when information about social conditions is combined with economic and environmental data that the full impact of development decisions on the quality of life can be

understood. In order for countries to meet the needs of their people now and in the long term, governments must develop policies that balance social needs with both economic growth and environmental protection.

Social indicators

One way of measuring a country's level of development is to look at social data such as the population growth rate, which measures the increase in a country's population and reflects the number of births and deaths and people migrating into and out of the country. As you explore the Population Growth Rate learning module, what other types of social data and information would help you better understand how people live in a particular country? What kinds of economic and environmental data would give you a fuller picture of what life is like in that country?

Population Growth Rate

Did You Know?

- *In low-income countries more than a third of the population is under age 15, while in high-income countries less than a fifth is.*
- *The world's population is growing by 230,000 people a day.*
- *Between 1980 and 2030, the population of low- and middle-income countries will more than double -- to 7.2 billion, compared with 1 billion for high-income countries.*
- *In the next 35 years, 2.5 billion people will be added to the current population of almost 6 billion.*

- Population growth rates are much higher in most low- and middle-income countries than in most high-income countries.
- Population growth rates have declined in low- and middle-income countries over the past few decades but remain high because birth rates have not fallen as rapidly as death rates.
- There will be more than 1 billion more people in the world in 2010 than there were in 1995 (as population grows from 5.5 billion to 6.9 billion), and six out of seven of these people will live in low- and middle-income countries.
- Although the population growth rate for developing countries has been decreasing for several decades, the number of people added to the population each year has been increasing because the population base has become larger.
- Countries that have a large proportion of their population in their childbearing years often experience population momentum. Even if couples have only enough children to replace themselves when they die, the population will continue to grow and will not stabilize until the younger group ages beyond their childbearing years.
- Birth rates tend to fall when parents have access to family planning, health care, education and jobs.
- Population growth can make it more difficult to raise standards of living in some countries and can put pressure on the environment.
- Two of the most successful strategies for reducing fertility rates are providing greater access to primary health care and promoting education for girls and women.

Population Growth Rate

Population growth rate (PGR) is the increase in a country's population during a period of time, usually one year, expressed as a percentage of the population at the start of that period. It reflects the number of births and deaths during the period and the number of people migrating to and

from a country.

Between 1980 and 1995 total world population grew from 4.4 billion to almost 5.7 billion. By 2010, at least another billion people will be added for a total of almost 6.9 billion. Chart 1 shows that most of this growth has been, and will continue to be, in the developing world. In 1995, 84 percent of the world's people—more than 4 out of 5—lived in low- and middle-income countries; by 2010, it will be 6 out of 7.

Global trends in population growth rates

Death and birth rates have declined over the past several decades. People are living longer in both industrial and developing countries because of increased access to immunization, primary health care, and disease eradication programs. Many parents are realizing that as health conditions improve, more of their children are likely to survive, so they are choosing to have fewer babies. Increased access to family planning is helping parents control the number and spacing of their children. In addition, with greater access to education and jobs, more women are starting their families later and are having fewer, healthier children.

Due to the slowing of birth rates, population growth rates have started to decline in the many countries, although they still remain high in some countries because birth rates have not fallen as rapidly as death rates. As Chart 2 shows, population growth rate still tends to be higher in low- and middle-income countries than in high-income countries. Even as the population growth rate has been decreasing in these countries, the number of people added to the population each year has been increasing because the population base has become larger.

Population momentum

The lack of balance between birth and death rates is particularly pronounced in many developing countries experiencing population momentum. This phenomenon occurs when a large proportion of a country's population is of childbearing age. Even if the fertility rate of people in developing countries reaches replacement level, that is if couples have only enough children to replace themselves when they die, for several decades the absolute numbers of people being born still will exceed the numbers of people dying.

Charts 3.1 and 3.2 show the composition of the population by age and gender in 1995 and 2025 for low- and high-income economies. As can be seen in Chart 3.1, there is a large difference in low-income countries between the percentage of people of childbearing age and more elderly adults. Once this young group moves beyond childbearing age, however, the momentum will decrease, and population can begin to stabilize so that births and deaths balance (assuming fertility rates remain at or below replacement levels). The reverse is true in many high-income countries where birth rates have already been low for several decades and populations have either stabilized or in some cases begun to decline.

How does the age of its population affect a country?

In low-income countries more than a third of the population is under age 15, compared with less than a fifth in high-income countries. This means that a larger portion of the low-income countries' population is too young to work and, in the short run, is dependent upon those who can.

But the transition to lower population growth rates can pose problems, too. As growth slows, the average age of the population rises and eventually the proportion of elderly, nonworking people will increase. This puts great pressure on the working-age population and on a country's pension, health care, and social security systems. This is an issue facing some high-income countries today and one that may face developing countries in the future as their population growth rates continue to decline.

People in motion

International migration has important social, economic and political significance. This is as true for countries that lose citizens to immigration as it is for the countries in which immigrants make their new homes. Although attention is often given to the numbers of people migrating from developing to industrial countries, most migration in the world today occurs between developing countries.

Urbanization is also significant. The rapid growth of cities in developing countries is nearly universal. Whereas less than 22 percent of the developing world's population was urban in 1960, by 1990 it had increased to 34 percent. By 2015 it is expected to exceed 50 percent.

The movement of people from rural to urban areas can result in greater production of goods and services, but it can also create congestion, pollution, and a greater demand for housing, clean water, sanitation facilities, recreation areas, public transport, health care and education. When rapid migration to cities strains the capacities of governments to provide these necessary services, the result may be a lower standard of living for everyone.

Population growth, the economy, and the environment

Rapid population growth rates can make it difficult for countries to raise standards of living and protect the environment because the more people there are, the greater the need for food, health care, education, houses, land, jobs, and energy. Adding more people to a country's population means that the wealth must be distributed among more people, causing GNP per capita to decrease at least in the short term.

Responding to the needs of a rapidly growing population can challenge a country's ability

to manage its natural resources on a sustainable basis. For example, people may not be able to get access to safe water because more and more households, farms and factories are using increasing amounts of water. Deforestation may occur as trees are cut to provide fuel for cooking, building materials, or land for grazing and agriculture. Desertification may occur as land that has been intensively farmed becomes depleted of its nutrients or eroded when trees whose roots systems once anchored the soil are gone. The air may become polluted as people crowd into cities, the number of cars increases, people use more and more energy, and economies continue to industrialize.

Strategies for change: Affecting population growth rates

Parents tend to have larger families when they fear that many of their babies may die, when they need laborers to work on the family farm or business, when they want to ensure that they themselves will be cared for in their old age, and when they lack access to education and to family planning if they want it.

Experience shows that three of the most successful strategies to reduce fertility rates are to ensure that people 1) have greater access to primary health care and family planning services, 2) receive a basic education, especially girls and women, and 3) have government services that help protect them when they are sick, old or unemployed.

Exploring the Population Growth Rate Text

1. Read and study the text and the definition of population growth rate and answer the following questions.
 - a. What does population growth rate measure? **[Population growth rate (PGR) is the increase in a country's population during a period of time, usually one year, expressed as a percentage of the population at the start of that period. It reflects the number of births and deaths during a period and the number of people migrating to and from a country.]**
 - b. If you wanted to get an accurate picture of population growth trends in a country, would you look at the average annual growth rate for a single year, or for a period of years? **[a period of years]** Explain why. **[Looking at growth rates over a period of years helps to counteract any uncommon short term events that might give an inaccurate picture of population trends. For example an epidemic, famine, or war could cause a significant drop in PGR one year, but the change would not be due to any long term shift in people's behavior, and therefore would not be as pronounced if looked at over a 10 or 15 year period.]**
2. Answer each of the following questions briefly, referring back to the text if necessary.
 - a. Why have death rates and birth rates declined?

[Death rates have declined largely because people have more access to better health care and better nutrition. Birth rates have declined because parents are more confident that their children will live to adulthood; more people have access to family planning; and more girls are receiving basic educations, and are choosing to start their families later in life and to have fewer, healthier children.]
 - b. What causes population momentum? What are its consequences?

[Population momentum occurs when a population consists of a large number of young people who are at childbearing ages. Because of their sheer numbers, and because they are having children, population in these countries continues to rise, even if they are reproducing at replacement fertility levels. As a consequence, population momentum does not allow the full effect of a lower PGR to be felt for several decades. The resulting larger population imposes additional demands on a country's social services, economy, and environment.]
 - c. How might increasing urbanization affect environmental conditions in a country?

[Increased urbanization can result in increased consumption of natural resources such as trees for lumber and fresh drinking water; more pollution which can affect air and water quality and can have a negative effect on health conditions, wildlife, and vegetation; more "crowding"; and fewer "green spaces".]

- d. To what extent does migration between your country and others, or from rural to urban areas within your country affect your country's economic, environmental, or social situation? [Answers will vary]
- e. What sorts of services and support can a government provide to its citizens that will help slow the population growth rate? Explain why you think these strategies may help.

[Governments can increase education, especially for girls; offer better family planning services to more people; provide medical insurance, pension plans, and social security; improve health care and decrease infant mortality; and increase people's awareness of problems of rapidly growing populations.]

- f. What might be some reasons why women with a basic education tend to have fewer children?

[They may be more aware of family planning options; they have probably learned about health, hygiene, and good nutrition, so more of their children survive; and they are better qualified to work outside the home and earn money, so they have more options in life and may choose to start families later and have fewer children.]

- 3. Calculate the annual population growth rate for countries A, B, and C using data provided in the table below and this formula:*

$$\begin{array}{ccccccc} \text{Population} & & \text{Population at} & & & & \text{Annual} \\ \text{increase in} & \div & \text{the start of} & \times & 100 & = & \text{Population} \\ \text{a year} & & \text{the year} & & & & \text{Growth} \\ & & & & & & \text{Rate \%} \end{array}$$

	Population at the start of the year	Population at the end of the year	Population increase during the year	Annual Population Growth Rate %
Country A	22,000,000	22,400,000	[400,000]	[1.8%]
Country B	8,500,000	8,800,000	[300,000]	[3.5%]
Country C	400,000,000	410,000,000	[10,000,000]	[2.5%]

* (Average annual population growth rates for a period of years provide a better picture than annual rates. For this reason, they are used in the Data Table. Calculating any growth rate for a period longer than a year requires more complicated mathematical formulas than the one used to calculate an annual rate.)

4. Population growth rates are small numbers, but they have large effects on population. To see what this means, do the following:
 - a. Assume the world population at the beginning of 1997 was about 5.8 billion. If the projected 1997 average annual population growth rate for the world was 1.3%, how many more people would be added to the world by 1998. **[75 million]**
 - b. If the 1997 world population grew at .2%, the same projected rate as the United Kingdom, how many more people would be added to the world by 1998. **[11million]**
 - c. If the 1997 world population grew at 2.2%, the same projected rate as Kenya, how many more people would be added to the world by 1998. **[128 million]**
 - d. Use your answers to questions 3a, b, and c to make a general statement about the relationship between population growth rates and the change in the size of a population. **[Even small changes in population growth rates have a significant impact upon the size of the world's population.]**
5. Use the calculations and data in the table below to calculate the birth rates, death rates, and population growth rates for three countries and fill in the missing information.

$$\begin{array}{lclclclcl}
 \text{Number of} & \div & \text{Population} & \times & 100 & = & \text{Birth Rate} \\
 \text{births (\%)} & & & & & & \\
 \\
 \text{Number of} & \div & \text{Population} & \times & 100 & = & \text{Death rate} \\
 \text{deaths (\%)} & & & & & & \\
 \\
 \text{Birth} & - & \text{Death rate} & & & = & \text{Population} \\
 \text{Rate (\%)} & & \text{(\%)} & & & & \text{Growth Rate} \\
 & & & & & & \text{(\%)}
 \end{array}$$

	Births	Deaths	Population	Birth Rate	Death Rate	Population Growth Rate
Country A	662,000	297,000	33,100,000	[2%]	[0.9%]	[1.1%]
Country B	411,000	191,800	27,400,000	[1.5%]	[0.7%]	[0.8%]
Country C	211,200	96,800	4,400,000	[4.8%]	[2.2%]	[2.6%]

6. If a population growth rate is low, population is growing slowly. If it is high, population is growing rapidly. To understand what "slow" and "rapid" mean, it helps to look at how long it will take different countries growing at different rates to double their population.

- a. The number of years it takes a population to double can be estimated by dividing the number 70 by that population's growth rate. Calculate the doubling time of populations growing at the rates shown in the key to the map.

[Less than 1%, 70 years or more; 1% to 1.9%, between 70 and 36 years; 2% to 3%, between 35 and 23 years; more than 3%, less than 23 years.]

- b. Is three percent a rapid growth rate? Explain. Is two percent a rapid growth rate? Explain. Is one percent a rapid growth rate? Explain. **[Answers will vary]**
- c. Use the projected population data in column 4 of the Data Table for 1995–2010 to calculate the population doubling time for these countries: your country, Canada, Chile, Finland, India, Zambia.

[Canada ($70/.6 = 116$ years); Chile ($70/1.1 = 64$); Finland ($70/.2 = 350$) India ($70/1.3 = 54$); Zambia = $70/2.1 = 33$]

- d. Assume that your country has an average annual population growth rate of 1.8%. It will take 39 years for your country's population to double. What changes will your country need to make to deal with this growth in population? Consider such issues as housing, health care, food supplies, transportation, employment, education, and the environment. Do you think your country presently has the resources to handle this rate of population growth? Why or why not? **[Answers will vary]**

7. What consequences might a declining population growth rate have on a country's economy and environment?

[This depends on a number of variables including the use of technology and the level of demand for goods and services. Smaller populations may require fewer natural resources, but if demand remains high, or if the country is able to export its surplus production, there may be no significant decrease in overall environmental impact. Slower population growth might allow a country to implement environmental policies and develop the institutions which can help protect the environment. A smaller population may mean that there will be fewer workers, and thus fewer goods and services (unless technology helps to increase production)]

Map - Average Annual Population Growth Rate (%), 1980–1995

Population growth rate (PGR) is the increase in a country's population during a period of time, usually one year, expressed as a percentage of the population at the start of that period. It reflects the number of births and deaths during the period and the number of people moving to and from a country. Countries with the most rapid population growth rates tend to be located in Africa and the Middle East. Countries with the slowest population growth rates tend to be located in Europe and North America.

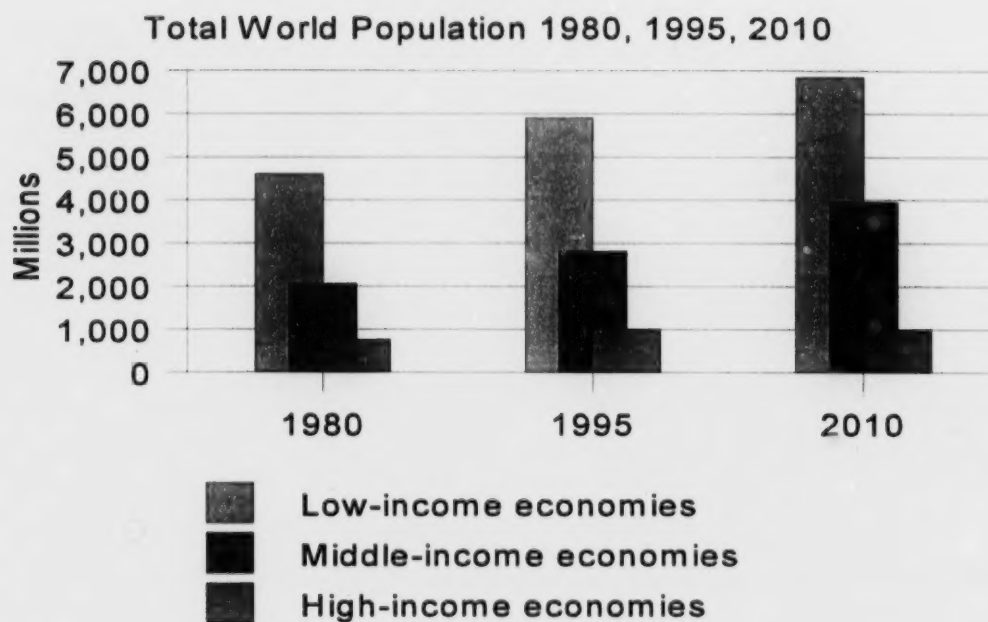
Exploring the Population Growth Rate Map

1. According to the map key, what color represents countries with lower population growth rates? Where do these countries tend to be located? [**Green, Europe**]
2. What color represents countries with higher population growth rates? Where do these countries tend to be located? [**Orange, Sub-Saharan Africa, Asia, the Middle East and South and Central America.**]
3. Which continent has the largest number of countries with a high PGR? What assumptions might you make about living conditions there?

[Africa. Infant mortality rates are probably high; family planning services are probably not readily available; many children may not have the chance to attend school; people may not get enough to eat; health conditions may be poor; living conditions are probably not as good as in countries where people earn more money, and where the population is growing more slowly.]

4. Name and locate on the map three countries with population growth rates of more than 3 percent, three with rates of 2 to 3 percent and three with rates of less than 1 percent. To what extent are these countries typical of other countries in their regions? [**Answers will vary.**]

Chart 1



Between 1980 and 1995 total world population grew from 4.4 billion to almost 5.7 billion. Based on population projections, by 2010 at least another billion people will be added for a total of almost 6.9 billion. Most of this growth will take place in low- and middle-income countries.

Exploring PGR Chart 1

1. Study Chart 1 which shows the world population size by country income group for 1980, 1995, and 2010. What is the total world population for each year? How much will total world population have increased from 1995 to 2010?

[1980: 4.4 billion; 1995: 5.7 billion; 2010: 6.9 billion; an increase of more than 1 billion people].

2. Use the data from the table below to complete the exercises that follow.

	1995	2010
	(Millions)	(Millions)
Low-income Economies	3180	3971
Middle-income Economies	1591	1916
High-income Economies	902	963
Total World Population	5673	6850

- a. Calculate the percentage of the world population that lived in low-, middle-, and high-income countries in 1995. **[56%; 28%; 16%]**
- b. Describe the general distribution of the world's population among low-, middle-, and high-income countries.

[There are twice as many people in low-income countries than in middle-income countries, and nearly 85% of the world's people—more than 4 out of every 5 people—live in low- and middle-income countries combined.]

- c. Calculate the percentage of the world's population that is projected to live in low-, middle-, and high-income countries in 2010. **[58%; 28%; 14%].**
- d. Compare the percentages for each country income group and describe the change between 1995 and 2010.

[The proportion of people in low-income countries is expected to increase, the proportion of people in middle-income countries is expected to stay the same, and the proportion of people in high-income countries is expected to

decrease.]

3. Use the Data Table to identify the five most populous countries in 1995 along with their populations, their regions, and their income groups, and fill in the following table:

Country	1995 population	Region	Income group
		(millions)	
[China]	[1,200]	[Asia (South & East)]	[low income]
[India]	[929]	[Asia (South & East)]	[low income]
[United States]	[263]	[North & Central America and the Caribbean]	[high income]
[Indonesia]	[193]	[Asia (South & East)]	[middle income]
[Brazil]	[159]	[South America]	[middle income]

- a. Which two countries had the largest populations? **[China and India]**
- b. To which income group did these two countries belong? **[low income]**
- c. Which region had the most countries in the top five most populous nations? **[Asia (South and East)]**
4. Use the Data Table to fill in the population information for China and India in the following table. Next, calculate the percentage of the world's population that is represented by China and India for 1995 and 2010 and add that information to the table. (Divide each country's population by the world's population and multiply the figure by 100.) Then answer the questions that follow.

	Population 1995	% of world population 1995	Average annual population growth rate 1995-2010	Population 2010	% of world population 2010
China	[1,200,000,000]	[21.2%]	.8	[1,347,000,000]	[19.7%]
India	[929,000,000]	[16.4%]	1.3	[1,127,000,000]	[16.4%]
World	5,673,000,000	----	1.3	6,850,000,000	---

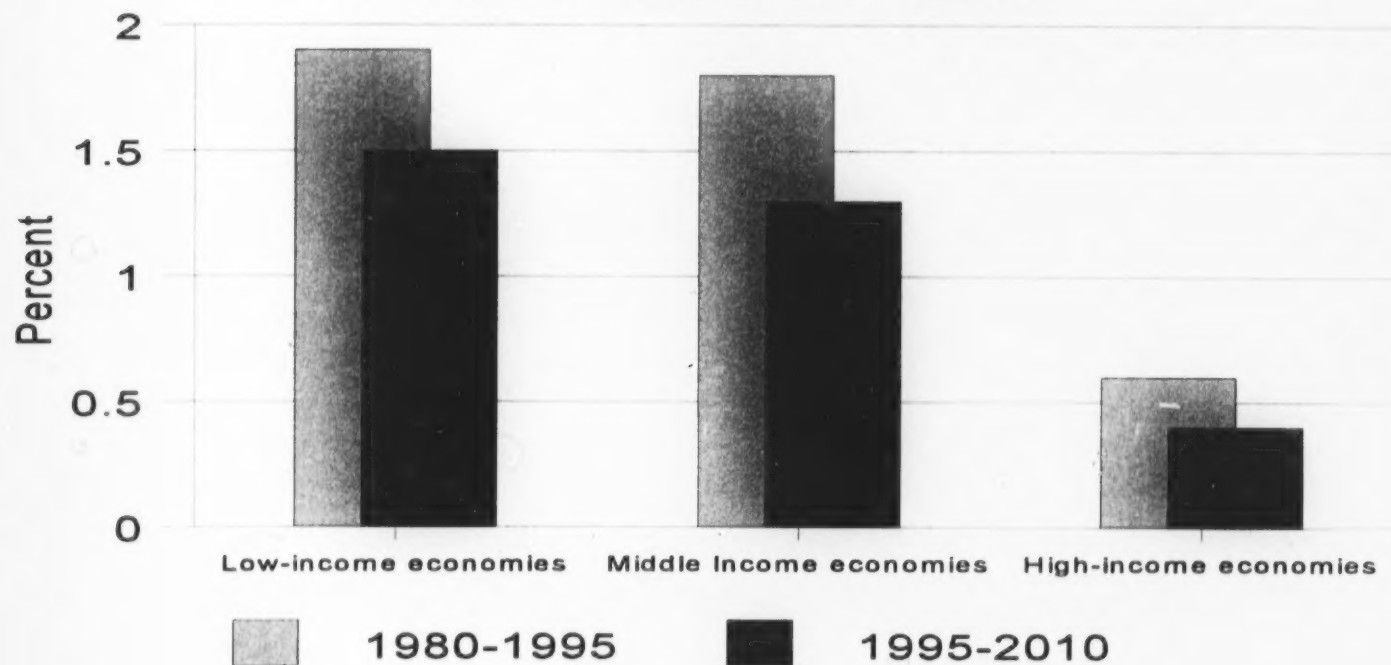
- a. Compare the population size of these two countries in 1995. How many times larger was China's population than India's? (Divide China's population by India's population.) **[China's population is about 1.3 times larger.]**
- b. Compare the population size of these two countries in 2010. How many times larger is China's population expected to be than India's? **[1.2 times]**
- c. India has a smaller population base than China, yet the gap in their populations is expected to decrease significantly in the next few years. How can you account for this? **[India's population is growing more than one-and-a-half times faster than China's.]**
- d. Add the projected 2010 populations of the two countries. What percentage of the world's population will they represent? **$[(1347 + 1127) \div 6850 = 36\%]$**
- e. Given the population size projections of these two countries, in what ways might they play important roles in the world economy? In your answer consider China and India's potential as producers and consumers, and to what extent this potential depends on the development of their human capital and the use of their natural resources.

[Answers will vary. Possible answer: If the current and future workers have adequate access to health services, food, education, and training, they may provide a large capable workforce for the production of goods and services for their own countries and for export. They might also provide large markets for imported goods and services, particularly if selling their goods and services abroad gives the average person more money to spend (measured in terms such as GNP per capita). In the short run, however, rapid population growth in low-income countries tends to lead to lower GNP per capita, allowing fewer resources per person to be invested in human capital development—the key to improving labor productivity. Large populations can also place stress on the environment as natural resources can become depleted, and increased energy use and general consumption can increase pollution—all of which can eventually affect productivity. Two great challenges for China and India as the most populous nations in the world will be to develop labor forces that will be able to support their future populations, and to manage their natural resources so that they will have the raw materials to remain productive for generations to come.]

5. In 1995, four out of every five people in the world lived in low- and middle-income countries. As this percentage increases, what might be some of the impacts on the global economy? On the environment? On peace and security issues? **[Answers will vary.]**

Chart 2

Average Annual Growth Rates



Population growth rates have started to decline in many countries, but the absolute numbers will continue to increase over the next several decades because the population base is larger. Growth rates tend to be higher in low- and middle-income countries than in high-income countries.

Exploring PGR Chart 2

1. Study the information in Chart 2. What is happening to the average annual population growth rate in low- and middle-income countries over time? **[It is decreasing.]**
2. According to Chart 1, what is happening to the population size in low- and middle-income countries over time? **[It is increasing.]**
3. How do you explain these two trends? **[Even though the population growth rate is decreasing, population size continues to grow because the population base has become larger.]**
4. The following table shows population data for three developing countries. Complete the table by calculating the annual population increase for each country (divide the percentage by 100 to get a decimal, then multiply population size by the decimal figure), then answer the questions that follow.

Country	Population size	Average annual PGR %	Annual Population Increase
Ethiopia			
1980	38,000,000	2.7	[1,026,000]
1995	56,000,000	2.8	[1,568,000]
Pakistan			
1980	83,000,000	3.0	[2,490,000]
1995	130,000,000	2.5	[3,250,000]
Ukraine			
1980	50,000,000	.2	[100,000]
1995	52,000,000	-.2	[-104,000]

- a. Look at the numbers for Pakistan. Although the average annual population growth rate decreased from 1980 to 1995, the annual population increase was greater in 1995. Why? **[The population base was larger in 1995.]**
- b. What are the population trends in Ethiopia? **[Both the population growth rate and population size have increased since 1980.]**
- c. What are the population trends in Ukraine? What would have been its total population in 1996? What might be some reasons for these trends? **[The**

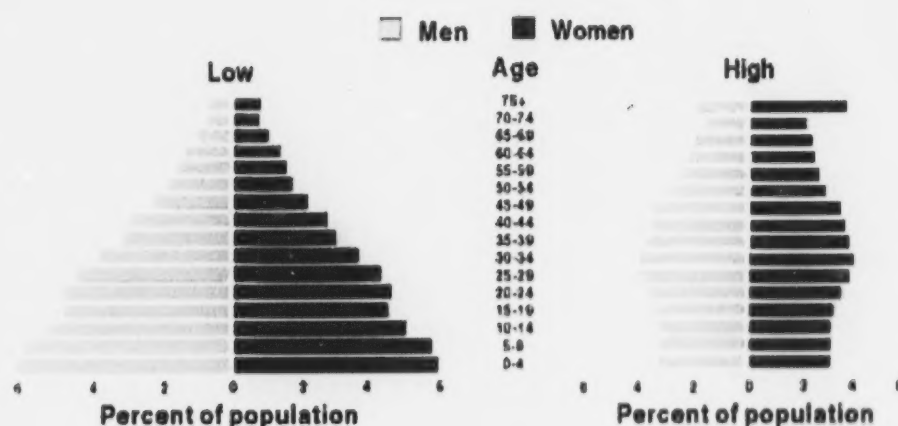
population is decreasing. 51,896,000. Possible answers: emigration, small families, political unrest, social insecurity, decline in health services.]

5. What effect might a declining population growth rate have on a country's economy and environment?

[This depends on a number of variables including the use of technology and the level of demand for goods and services. Smaller populations may require fewer natural resources, but if demand remains high, or if the country is able to export its surplus production, there may be no significant decrease in overall environmental impact. Slower population growth might allow a country to implement environmental policies and develop the institutions which can help protect the environment. A smaller population may mean that there will be fewer workers, and thus fewer goods and services (unless technology helps to increase production).]

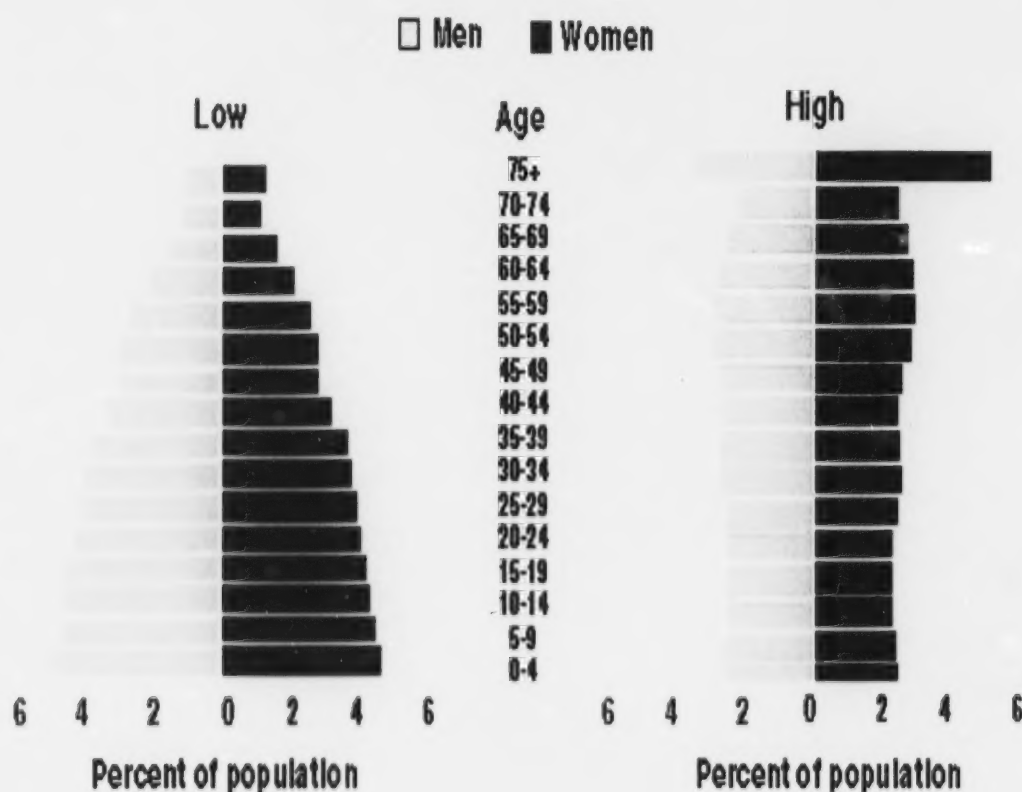
6. Why might a country not want to slow its population growth? **[Possible answers: religious reasons; to increase its political influence; it has a large land area and plenty of resources; it has experienced a decline in population.]**

Charts 3.1 Composition of Population in Low- and High-income Economies, 1995



In many low-income countries, the large difference between the percentage of people of childbearing age and more elderly adults causes population momentum which keeps population growth rates high even when fertility rates drop. In many high-income countries, where fertility rates are below replacement level and the largest segments of the population are older, populations will increase much less. To see the projected composition of population for low- and high-income economies in 2025, look at Chart 3.2

Chart 3.2 Composition of Population in Low and High-Income Economies, 2025



In many low-income countries, the large difference between the percentage of people of childbearing age and more elderly adults causes population momentum which keeps population growth rates high even when fertility rates drop. In many high-income countries, where fertility rates are below replacement level and the largest segments of the population are older, populations will increase much less. To see the composition of population for low- and high-income economies in 1995, look at Chart 3.1.

Exploring PGR Charts 3.1 & 3.2

1. Study the information in Chart 3.1 for low- and high-income economies in 1995. Then, answer the following questions about the population trends shown.
 - a. In low-income countries, which age range(s) contained the largest percentage of the population? the lowest? **[The highest: under age 30; the lowest: above age 50]**
 - b. In high-income countries, which age range(s) contained the largest percentage of the population? the lowest? **[The highest: between 25 and 50; the lowest: between 55 and 74]**
 - c. In a brief statement, compare the age composition of the populations for low- and high-income countries for 1995.

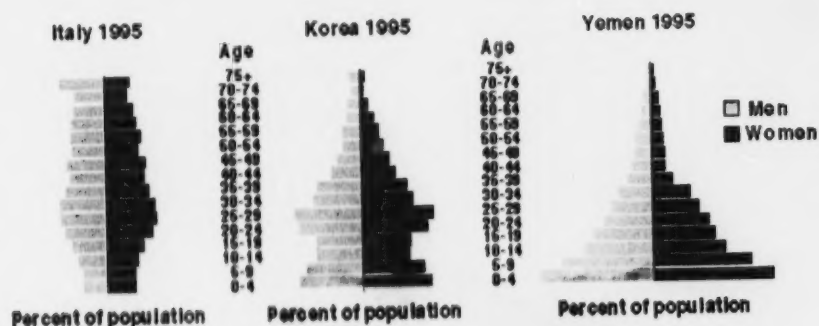
[In low-income countries, a large percentage of the overall population is under age 30, so the largest portion of the population is either in childbearing years or will soon enter childbearing years. In high-income countries, the largest segments of the population are middle-aged or older, and have either moved beyond childbearing years or will soon do so.]

- d. Considering your answer to question 1c, what type of social programs might be important to meet the future needs of the largest age groups of each country income group? **[Possible answers: To help care for and educate a young population, it might be important for low-income countries to invest in health programs for expectant mothers and children, family planning services, education and training programs, and housing. To help care for an aging population, it might be important for high-income countries invest in health services for the elderly, pension plans, and assisted living programs.]**
2. Study the information in Chart 3.2 for low- and high-income economies in 2025. Then, answer the following questions about the population trends shown.
 - a. In low-income countries, which age range(s) contained the largest percentage of the projected population? the lowest? **[The highest: below age 39; the lowest: above age 64]**
 - b. In high-income countries, which age range(s) contained the largest percentage of the projected population? the lowest? **[The highest: above age 50, particularly above age 75; the lowest: below age 25]**
 - c. Compare the age composition of the populations for low- and high-income countries shown in Chart 3.2 with those shown in Chart 3.1.

[In the 2025 projections for low-income countries, there is less of a pronounced difference between the old and the young groups than in 1995, but there is still a large percentage of the overall population in childbearing years. The population in low-income countries is stabilizing. In high-income countries, the largest segments of the population have moved beyond childbearing and have entered retirement years. The trends that were in place in 1995 have become more pronounced.]

- d. Compare the gender composition for low- and high-income countries shown in Chart 3.2. with those shown in Chart 3.1. **[In 1995, the percentage of men and women is roughly the same in both low- and high-income countries up to age 75 where there is a dramatic increase in the number of women as a percentage of the overall population in high-income economies This same trend continues for men and women in 2025.]**
3. Read the definition of population momentum in the glossary. Using Charts 3.1 and 3.2 as a reference, in which economic groups and years do you think this phenomenon exists? Why? **[In low-income economies in 1995 and 2025. Because of the youthful age structure which is typical of developing countries in these years, population growth will not stop for several decades.]**
4. Look at the shapes of the charts in Charts 3.1 and 3.2. What would a stabilized population look like? Explain. **[It would be a rectangle, because the percentage of the population dying would be approximately equal to the percentage of people being born.]**
5. What impact might population momentum have on the care of small children in a country where a large proportion of the childcare duties are performed by daycare centers? **[Population momentum may cause childcare to become scarce or over-crowded because the size of the population needing the services could outnumber the size of the population able to provide the service.]** What about a population where elderly relatives provide childcare? **[Again, childcare may be difficult to find since the number of babies is so much greater than the number of older people available to take care of them.]** Who are the caretakers of small children in your country? **[Answers will vary.]** What effect might population momentum have on these arrangements? **[Answers will vary.]**
6. What impact might an aging population have on the care of elderly people in a country where a large proportion of these people live in nursing homes or elderly housing? **[An aging population may cause elderly housing and nursing home care to become scarce because the ever-increasing numbers of elderly people needing the services could grow to outnumber the portion of the population able to provide care.]** How are elderly people cared for in your country? **[Answers will vary.]** What impact might an aging population have on this care? **[Answers will vary.]**

7. Match each of the following descriptions with the country below that illustrates the trend described.



- The death rate is high, the birth rate is high, and there are a large number of children in the population. [**Yemen**]
- There has been a sustained decline in the birth rate, but the proportion of the elderly population has not yet become large. [**Korea**]
- The birth rate has been low for a long period, and the elderly proportion of the population is increasing. [**Italy**]

BEST COPY AVAILABLE

Social Data Tables

Asia (South and East) and the Pacific	North and Central America and the Caribbean
Europe and Central Asia	South America
Middle East and North Africa	Sub-Saharan Africa

Asia (South and East) and the Pacific

			1	2	3	4	5	6	7	8
			Total Population		Population Growth		GNP per capita		Access to Safe Water	Access to Sanitation
			millions		average annual growth rate (%)		\$	PPP*	% of population	% of population
			1995	2010	1980-95	1995-2010	1995	1995	1989-95	1989-95
L	1	Afghanistan	..	..	..	..	1	..	..	..
H	2	Australia	18	20	1.4	0.8	18,720	18,940	95	90
L	3	Bangladesh	120	150	2.2	1.5	240	1,380	83	30
L	4	Cambodia	10	14	2.9	2.0	270	..	13	..
L	5	China	1,200	1,347	1.3	0.8	620	2,920	46	..
H	6	HongKong,China	6	6	1.4	0.2	22,990	22,950a	..	..
L	7	India	929	1,127	2.0	1.3	340	1,400	63	29
M	8	Indonesia	193	235	1.8	1.3	980	3,800	63	55
H	9	Japan	125	128	0.5	0.1	39,640	22,110	95	85
M	10	Korea, Dem.Rep.	24	29	1.8	1.3	M	..	100	100
H	11	Korea, Rep.	45	50	1.1	0.8	9,700	11,450	89	100
L	12	Laos PDR	5	7	2.8	2.8	350	..	41	30
M	13	Malaysia	20	26	2.5	1.8	3,890	9,020	90	94
L	14	Mongolia	2	3	2.6	1.8	310	1,950	54	..
L	15	Myanmar	45	57	1.9	1.6	1	..	39	42
L	16	Nepal	21	30	2.5	2.2	200	1,170	48	22
H	17	New Zealand	4	4	1.0	0.8	14,340	16,360	..	..
L	18	Pakistan	130	190	3.0	2.5	460	2,230	60	30
M	19	PapuaNewGuinea	4	6	2.2	2.0	1,160	2,420	31	26
M	20	Philippines	69	90	2.3	1.8	1,050	2,850	84	75
H	21	Singapore	3	3	1.8	1.0	26,730	22,770	100	100
L	22	Sri Lanka	18	21	1.4	1.1	700	3,250	57	66
M	23	Thailand	58	65	1.5	0.7	2,740	7,540	81	87
L	24	Vietnam	73	93	2.1	1.6	240	..	38	21

.. Means that data are not available or that aggregates cannot be calculated because of missing data in shown year

*PPP is purchasing power parity

H High-income economy

M Middle-income economy

L Low-income economy

l Estimated to be a low-income country

m Estimated to be a middle-income country

a references to GNP

Europe and Central Asia

			1	2	3	4	5	6	7	8
			Total Population		Population Growth		GNP per capita		Access to Safe Water	Access to Sanitation
			millions		average annual growth rate (%)		\$	PPP*	% of population	% of population
			1995	2010	1980-95	1995-2010	1995	1995	1989-95	1989-95
L	25	Albania	3	4	1.3	1.0	670	..	..	100
L	26	Armenia	4	4	1.3	0.8	730	2,260	..	..
H	27	Austria	8	8	0.4	0.1	26,890	21,250	..	100
L	28	Azerbaijan	8	9	1.3	1.0	480	1,460	..	..
M	29	Belarus	10	10	0.5	0.1	2,070	4,220	..	100
H	30	Belgium	10	10	0.2	0.1	24,710	21,660	..	100
L	31	Bosnia & Herzegovina	..	..	..	..	1	..	..	..
M	32	Bulgaria	8	8	-0.3	-0.3	1,330	4,480	..	99
M	33	Croatia	5	5	0.3	0.0	3,250	..	96	68
M	34	Czech Republic	10	10	0.1	0.0	3,870	9,770	..	..
H	35	Denmark	5	5	0.1	0.1	29,890	21,230	100	100
M	36	Estonia	1	1	0.0	-0.5	2,860	4,220	..	..
H	37	Finland	5	5	0.4	0.2	20,580	17,760	100	100
H	38	France	58	60	0.5	0.3	24,990	21,030	100	96
L	39	Georgia	5	6	0.4	0.1	440	1,470	..	..
H	40	Germany	82	82	0.3	0.0	27,510	20,070	..	100
M	41	Greece	10	11	0.5	0.2	8,210	11,710	..	96
M	42	Hungary	10	10	-0.3	-0.2	4,120	6,410	..	94
H	43	Ireland	4	4	0.4	0.7	14,710	15,680	..	100
H	44	Italy	57	56	0.1	-0.1	19,020	19,870	..	100
M	45	Kazakhstan	17	18	0.7	0.7	1,330	3,010	..	..
L	46	Kyrgyz Republic	5	5	1.5	1.1	700	1,800	75	53
M	47	Latvia	3	2	-0.1	-0.7	2,270	3,370	..	..
M	48	Lithuania	4	4	0.6	-0.1	1,900	4,120	..	..
M	49	Macedonia, FYR	2	2	0.8	0.8	860	..	..	..
M	50	Moldova	4	5	0.5	0.3	920	..	..	50
H	51	Netherlands	15	16	0.6	0.3	24,000	19,950	100	100

			1	2	3	4	5	6	7	8
H	52	Norway	4	5	0.4	0.3	2,790	5,400	..	100
M	53	Poland	39	40	0.5	0.3	2,790	5,400	..	100
H	54	Portugal	10	10	0.1	0.1	9,740	12,670	..	100
M	55	Romania	23	22	0.1	-0.1	1,480	4,360	..	49
M	56	Russian Federation	148	145	0.4	-0.1	2,240	4,480	..	..
M	57	Slovak Republic	5	6	0.5	0.2	2,950	3,610	..	51
M	58	Slovenia	2	2	0.3	0.0	8,200	..	..	90
H	59	Spain	39	39	0.3	0.0	13,580	14,520	99	97
H	60	Sweden	9	9	0.4	0.2	23,750	18,540	..	100
H	61	Switzerland	7	7	0.7	0.2	40,630	25,860	100	100
L	62	Tajikistan	6	8	2.6	1.9	340	920	..	62
M	63	Turkey	61	75	2.1	1.4	2,780	5,580	92	94
M	64	Turkmenistan	5	6	3.0	2.3	920	..	85	60
M	65	Ukraine	52	50	0.2	-0.2	1,630	2,400	97	49
H	66	United Kingdom	59	60	0.3	0.2	18,700	19,260	100	96
M	67	Uzbekistan	23	31	2.4	2.0	970	2,370	..	18
M	68	Yugoslavia, FR (Serb/Mont.)	11	11	0.7	0.2	m	..	..	100

.. Means that data are not available or that aggregates cannot be calculated because of missing data in shown year

*PPP is purchasing power parity

H High-income economy

M Middle-income economy

L Low-income economy

l Estimated to be a low-income country

m Estimated to be a middle-income country

a references to GNP

BEST COPY AVAILABLE

Middle East and North Africa

			1	2	3	4	5	6	7	8
			Total Population		Population Growth		GNP per capita		Access to Safe Water	Access to Sanitation
			millions		average annual growth rate (%)		\$	PPP*	% of population	% of population
			1995	2010	1980-95	1995-2010	1995	1995	1989-95	1989-95
M	69	Algeria	28	36	2.7	1.7	1,600	5,300	..	..
M	70	Egypt, Arab Rep.	58	73	2.3	1.6	790	3,820	84	..
M	71	Iran, Islamic Rep	64	91	3.3	2.4	790	3,820	84	..
M	72	Iraq	20	31	2.9	3.0	m	5,470	89	82
H	73	Israel	6	7	2.4	1.4	15,920	16,490	99	70
M	74	Jordan	4	6	4.4	2.4	1,510	4,060	89	30
H	75	Kuwait	2	2	1.3	2.6	17,390	23,790	..	..
M	76	Lebanon	4	5	2.3	1.3	2,660	..	..	..
M	77	Libya	5	9	3.8	3.2	m	..	30	18
M	78	Morocco	27	34	2.1	1.6	1,110	3,340	59	63
M	79	Oman	2	4	4.6	3.8	4,820	8,140	56	72
M	80	Saudi Arabia	19	31	4.7	3.3	7,040	..	93	86
M	81	Syrian Arab Rep	14	21	3.2	2.7	1,120	5,320	87	78
M	82	Tunisia	9	11	2.3	1.5	1,820	5,000	86	72
H	83	United Arab Emir	2	3	5.7	2.2	17,400	16,470	98	95
M	84	West Bank & Gaza	2	4	3.9	4.1	m	..	..	..
L	85	Yemen, Rep.	15	25	3.9	3.3	260	..	52	51

.. Means that data are not available or that aggregates cannot be calculated because of missing data in shown year

*PPP is purchasing power parity

H High-income economy

M Middle-income economy

L Low-income economy

l Estimated to be a low-income country

m Estimated to be a middle-income country

a references to GNP

BEST COPY AVAILABLE

North and Central America and the Caribbean

			1	2	3	4	5	6	7	8
			Total Population		Population Growth		GNP per capita		Access to Safe Water	Access to Sanitation
			millions		average annual growth rate (%)		\$	PPP*	% of population	% of population
			1995	2010	1980-95	1995-2010	1995	1995	1989-95	1989-95
H	86	Canada	30	32	1.2	0.6	19,380	21,130	100	85
M	87	Costa Rica	3	4	2.7	1.5	2,610	5,850	100	99
M	88	Cuba	11	12	0.8	0.6	m	..	94	66
M	89	Dominican Republic	8	9	2.1	1.3	1,460	3,870	79	85
M	90	El Salvador	6	8	1.4	2.0	1,610	2,610	62	73
M	91	Guatemala	11	15	2.9	2.5	1,340	3,340	64	71
L	92	Haiti	7	9	1.9	1.3	250	910	28	24
L	93	Honduras	6	9	3.2	2.5	600	1,900	70	68
M	94	Jamaica	3	3	1.1	1.0	1,510	3,540	70	74
M	95	Mexico	92	114	2.1	1.5	3,320	6,400	87	70
L	96	Nicaragua	4	6	3.0	2.4	380	2,000	57	..
M	97	Panama	3	3	2.0	1.3	2,750	5,980	82	87
M	98	Puerto Rico	4	4	1.0	0.8	m	..	..	..
M	99	Trinidad & Tobago	1	1	1.2	1.0	3,770	8,610	82	56
H	100	United States	263	297	1.0	0.8	26,980	26,980	90	85

.. Means that data are not available or that aggregates cannot be calculated because of missing data in shown year

*PPP is purchasing power parity

H High-income economy

M Middle-income economy

L Low-income economy

l Estimated to be a low-income country

m Estimated to be a middle-income country

a references to GNP

BEST COPY AVAILABLE

South America

			1	2	3	4	5	6	7	8
			Total Population		Population Growth		GNP per capita		Access to Safe Water	Access to Sanitation
			millions		average annual growth rate (%)		\$	PPP*	% of population	% of population
			1995	2010	1980-95	1995-2010	1995	1995	1989-95	1989-95
M	101	Argentina	35	40	1.4	1.0	8,030	8,310	64	89
M	102	Bolivia	7	10	2.2	2.1	800	2,540	60	44
M	103	Brazil	159	190	1.8	1.2	3,640	5,400	92	73
M	104	Chile	14	17	1.6	1.1	4,160	9,520	96	71
M	105	Columbia	37	45	1.8	1.3	1,910	6,130	96	70
M	106	Ecuador	11	15	2.4	1.7	1,390	4,220	70	64
M	107	Paraguay	5	7	2.9	2.1	1,690	3,650	8	30
M	108	Peru	24	30	2.1	1.6	2,310	3,770	60	47
M	109	Uruguay	3	3	0.6	0.6	5,170	6,630	83	82
M	110	Venezuela	22	28	2.5	1.7	3,020	7,900	88	55

.. Means that data are not available or that aggregates cannot be calculated because of missing data in shown year

*PPP is purchasing power parity

H High-income economy

M Middle-income economy

L Low-income economy

l Estimated to be a low-income country

m Estimated to be a middle-income country

a references to GNP

BEST COPY AVAILABLE

Sub-Saharan Africa

			1	2	3	4	5	6	7	8
			Total Population		Population Growth		GNP per capita		Access to Safe Water	Access to Sanitation
			millions		average annual growth rate (%)		\$	PPP*	% of population	% of population
			1995	2010	1980-95	1995-2010	1995	1995	1989-95	1989-95
L	111	Angola	11	16	2.9	2.8	410	1,310	32	16
L	112	Benin	5	8	3.1	2.6	370	1,760	70	22
M	113	Botswana	1	2	3.2	1.7	3,020	5,580	70	55
L	114	Burkina Faso	10	15	2.7	2.6	230	780	..	14
L	115	Burundi	6	9	2.8	2.5	160	630	58	48
L	116	Cameroon	13	20	2.8	2.9	650	2,110	41	40
L	117	Central African Republic	3	4	2.3	2.0	340	1,070	..	..
L	118	Chad	6	9	2.4	3.4	180	700	29	32
L	119	Congo, Dem.	44	..	3.2	..	120	490	25	9
L	120	Congo, Rep.	3	4	3.0	2.6	680	2,050	60	9
L	121	Cote d'Ivoire	14	19	3.6	2.2	660	1,580	82	54
L	122	Eritrea	..	..	..	..	1	..	..	..
L	123	Ethiopia	56	86	2.7	2.8	100	450	27	10
M	124	Gabon	1	2	3.0	2.3	3,490	..	67	76
L	125	Gambia, The	1	2	3.7	2.1	320	930	61	34
L	126	Ghana	17	25	3.1	2.4	390	1,990	56	42
L	127	Guinea	7	10	2.6	2.8	550	..	49	6
L	128	Guinea-Bissau	1	1	1.9	2.1	250	790	57	20
L	129	Kenya	27	37	3.2	2.2	280	1,380	49	43
M	130	Lesotho	2	3	2.5	2.1	770	1,780	57	35
L	131	Liberia	..	..	..	..	1	..	..	..
L	132	Madagascar	14	21	3.0	2.8	230	640	32	17
L	133	Malawi	10	14	3.1	2.4	170	750	54	63
L	134	Mali	10	15	2.6	3.0	250	550	44	44
L	135	Mauritania	2	3	2.6	2.3	460	1,540	72	64
M	136	Mauritius	1	1	1.0	1.0	3,380	13,210	100	100

			1	2	3	4	5	6	7	8
L	137	Mozambique	16	23	1.9	2.4	80	810	28	23
M	38	Namibia	2	2	2.7	2.3	2,000	4,150	57	36
L	139	Niger	9	15	3.3	3.2	220	750	57	15
L	140	Nigeria	111	164	3.0	2.6	260	1,220	43	38
L	141	Rwanda	6	11	1.4	3.5	180	540	..	..
L	142	Senegal	8	12	2.8	2.5	600	1,780	..	..
L	143	Sierra Leone	4	6	1.7	2.7	180	580	..	..
L	144	Somalia	..	..	..	..	1	..	..	..
M	145	South Africa	41	55	2.3	1.9	3,160	5,030	..	46
L	146	Sudan	27	37	2.4	2.2	1	..	77	55
L	147	Tanzania/b	30	44	3.1	2.6	120	640	49	86
L	148	Togo	4	6	3.0	2.7	310	1,130	67	20
L	149	Uganda	19	28	2.7	2.6	240	1,470	42	60
L	150	Zambia	9	12	3.0	2.1	400	930	47	42
L	151	Zimbabwe	11	14	3.0	1.6	540	2,030	74	58

.. Means that data are not available or that aggregates cannot be calculated because of missing data in shown year

*PPP is purchasing power parity

H High-income economy

M Middle-income economy

L Low-income economy

l Estimated to be a low-income country

m Estimated to be a middle-income country

a references to GNP

BEST COPY AVAILABLE

Exploring the PGR Data Table

1. Read the definition of growth rates. Use the Data Table to find the countries that have negative average annual population growth rates projected for the years 1995–2010.
 - a. How many countries have negative projected population growth rates? [9] In which region(s) are these countries located? **[Europe and Central Asia]**
 - b. How will a negative population growth rate affect the actual numbers of people in these countries? **[The total populations of these countries will decrease between 1995 and 2010.]**
 - c. What might be some benefits to a decrease in population? **[Possible answers: The demand for social services, economic goods, and natural resources might lessen so that each person could have more. There might be less pollution.]**
 - d. What are some potential problems if a country's population is decreasing or growing too slowly to replace the number of people who die? **[As growth slows, the average age of the population rises and eventually the proportion of elderly, nonworking people will increase. This can put great pressure on a country's pension, health care, and social security systems.]**
2. Make a copy of the blank Comparative Data Table and label the first column Countries and the second column Population growth rate, 1980–95. Then using the text and the Data Table, fill in the chart according to the following instructions.
 - a. In the column at the left of the table, write the following countries and their regions: Brazil (South America), Ghana (Sub-Saharan Africa), Philippines (Asia, South and East, and the Pacific), Egypt (Middle East and North Africa), Canada (North and Central American and the Caribbean), Russian Federation (Europe and Central Asia).
 - b. Read the definition of population growth rate.
 - c. Use the Data Table to find the average annual population growth rate for each country during 1980–95. Rank the countries with "1" equaling the lowest population growth rate and "6" the highest. Write the appropriate ranking number in parentheses after the data in column 2. Make a general statement comparing the population growth rates in these six countries.
 - d. Find each of the six countries in the world and regional map gallery. Compare the color of each country with those of its neighbors. To what extent is each country typical of conditions in its area and region? Make a general statement comparing the population growth rates in the six regions.
3. Make a copy of the blank Comparative Data Table and label the first column Countries, the second column Population growth rate, 1980–95, the third column

GNP per capita, 1995, the fourth column Access to safe water, 1989–95 and the fifth Access to sanitation, 1989–95. Then using the text and the Data Table, fill in the chart according to the following instructions.

- a. Choose a low-income country in Sub-Saharan Africa and one in Asia (South and East) and the Pacific and write their names in the first column.
- b. Choose a middle-income country in each of the following regions and add them to the first column: South America, Europe and Central Asia, and Middle East and North Africa.
- c. Choose a high-income country in North and Central America and the Caribbean, one in Europe and Central Asia, and one in Asia (South and East) and the Pacific and add them to the first column.
- d. Label each country in your data table with an L, M, or H to show which income group it belongs to: low, middle, or high.
- e. Read the definitions of population growth rate, GNP per capita, access to safe water, and access to sanitation. Go to the Data Table, and for each of your countries find the 1980–95 population growth rate, 1995 GNP per capita, 1989–95 percentage of population with access to safe water, and 1989–95 percentage of population with access to sanitation, and write this information in the appropriate columns. If data for one of the indicators are not available, select another country from the same income group and region.
- f. Rank the countries, with "1" equaling the lowest population growth rate and "8" the highest. Write the appropriate ranking number in parentheses after the data in column 2.
- g. Study your chart and answer the following questions:
 - In the countries with population growth rates of more than 3 percent, are the other indicators high or low? **[Answers will vary.]**
 - In the countries with population growth rates of 2 to 3 percent, are the other indicators higher or lower than in the countries with population growth rates of more than 3 percent? **[Answers will vary.]**
 - In the countries with population growth rates of less than 1 percent, are the other indicators higher or lower than in the other countries? **[Answers will vary.]**
 - Does population growth rate follow the same trend as the other development indicators in your chart? Explain. **[Answers will vary.]**



Exploring PGR Photo 1 - Grandmother and Children, USA

1. Look at the photograph. Describe what you see. **[An elderly woman is reading to two children.]**
2. Would this be a common scene in your country? Why or why not? **[Answers will vary.]**
3. In which country was this photograph taken? **[United States]**
4. Find the country in the world and regional map gallery. What region is it in? **[North and Central America and the Caribbean]**
5. Find the country in the Data Table and determine if it is a low-, middle-, or high-income economy. **[It is a high-income economy.]**
6. According to the Data Table, what is this country's projected population growth rate for 1995-2010? **[0.8%]** Its 1995 GNP per capita? **[\$26,980]** The percentage of its 1989-1995 population with access to safe water? **[90%]**
7. What do you think life is like for the average person in this country? Support your answer. **[Answers will vary, but should take into account the possible effects of the population growth rate, the GNP per capita, and the percentage of the population with access to safe water on the quality of life.]**
8. What, if any, aspects of the activity shown in the photograph might help improve living standards in industrial countries? In developing countries? **[Possible answer: In both industrial and developing countries, older generations can help families with child care and education. In doing so, they can help to preserve the family's culture and values and can also help the family save money in child care expenses.]**
9. Which sector of development (i.e., social, economic or environmental) is best represented by the photograph? **[Social]** Explain your answer. Is it possible for this photograph to

represent other sectors as well? In what way? **[Answers will vary.]**

10. In what ways might the activity in the photograph encourage sustainable development? In what ways might it discourage sustainable development? Explain your answer. **[Possible answer: Acknowledging and accepting the contributions that older people can make to family life allows people to still be productive when they are no longer able to work in the formal economic sector. They encourage sustainable development by providing stability to their families while making it possible for other family members to earn a living.]**



Exploring PGR Photo 2 Girls' Education, Mali

1. Look at the photograph. Describe what you see. **[Girls are working in a classroom.]**
2. Would this be a common scene in your country? Why or why not? **[Answers will vary.]**
3. In which country was this photograph taken? **[Mali]**
4. Find the country in the world and regional map gallery. What region is it in? **[Sub-Saharan Africa]**
5. Find the country in the Data Table and determine if it is a low-, middle-, or high-income economy. **[It is a low-income economy.]**
6. According to the Data Table, what is this country's projected population growth rate for 1995-2010? **[3.0%]** Its 1995 GNP per capita? **[\$250]** The percentage of its 1989-1995 population with access to safe water? **[44%]**
7. What do you think life is like for the average person in this country? Support your answer. **[Answers will vary, but should take into account the possible effects of the population growth rate, the GNP per capita, and the percentage of the population with access to safe water on the quality of life.]**
8. What, if any, aspects of the activity shown in the photograph might help improve living standards in industrial countries? In developing countries? **[Since studies show that girls who are educated tend to have smaller, healthier families, girls' education can improve living standards in both industrial and developing countries. In addition, by having an educated labor pool, countries will be better able to support more of the higher paying, high-tech industries.]**
9. Which sector of development (i.e., social, economic or environmental) is best represented by the photograph? **[social]** Explain your answer. **[Answers will vary.]** Is it possible for this photograph to represent other sectors as well? In what way? **[Answers will vary.]**

10. In what ways might the activity in the photograph encourage sustainable development? In what ways might it discourage sustainable development? Explain your answer. **[Possible answer: When women have a basic education, they tend to delay marriage and take more time to find suitable husbands; know about and practice family planning; have more job opportunities; and lose fewer babies to childhood diseases and malnutrition, and as a result choose to give birth to fewer children. All of these outcomes tend to improve the social, physical, and economic health (and therefore sustainability) of a country. In addition, the resulting slowing of the population growth rate can lessen the stress placed on natural resources and the environment.]**

Case Study 1

A Day in the Life of a Traveling Health Care Worker - Cameron

I park my motor scooter at the bottom of the hill and begin my trek up the dirt path. As a traveling health care worker employed by the Cameroonian government, my job is to bring education about family planning to those living in the remote, rural areas of our country. Holding today's session in a new corn mill that is part of the government-funded women's food cooperative seemed the best way to reach a majority of residents, particularly women since they are the principal cultivators of food crops. But family planning can be a controversial issue. As I crest the hill and walk toward the mill office, I am not sure how many citizens will actually show up.

My anxieties prove unfounded. I hear the hum of voices even before I open the office door. About fifteen women, representing a broad spectrum of ages, are seated on wooden benches some with small children on their laps.

"Good morning," I say. "My name is Christy Ngam, and I've come from the Ministry of Health to talk with you about family planning. After introductions, I'm going to make a brief presentation and then look forward to hearing your thoughts and concerns on the topic. Shall we begin?"

After the introductions, I spend the next hour talking about responsible parenthood and birth spacing as well as sexually transmitted diseases (STDs), including AIDS. Afterwards, I open the floor to discussion. Several participants raise their hands. I gesture for Benedicta, a forty-year-old mother of seven, to begin.

"I agree that having smaller families makes sense," she begins. "My oldest son, however, is always pointing to all the improvements in our village-this mill, the roads we have dug, our new school-and arguing that we have the resources to sustain a growing population. What shall I say to him?"

"It's good to be proud of the progress we've made," answers another woman, "but your son needs to understand that our growing population affects the land. In our village, with so many mouths to feed, the pressure to produce more food has forced us to clear a lot of our forest. This has caused soil erosion, a serious problem. As farmers, the soil is our lifeblood."

Bih, in her mid-twenties, raises her hand. "It's very important to my husband that he have many strong sons to help him raise and harvest the coffee. We've been married for five years and have two daughters so far, but only one son. If I don't have more sons, my husband may take another wife," she adds, her voice quivering.

"For many of us, a large family is a symbol of success, wealth, and prestige," I agree. "But, by spacing apart our pregnancies, we give both our sons and daughters a better chance of being born healthy and staying that way."

"As I tell my daughters, when you space your children, you can give more to the ones who

are already born," says Nambang, a white-haired grandmother wearing the traditional kaba, a long, flowing dress. "There's more money to pay for food, clothing, and medicine."

"And education!" chimes in Sarah, in her mid-thirties. "My hope is that one of my daughters may go to school."

"The fewer children we have, the larger each child's portion will be when we pass on," adds Juliana. "They won't have to struggle as much as we do to support their own families."

I nod enthusiastically. "Yes, I agree with you all. Family planning means so much more than just having fewer children. It contributes to the health and well-being of the whole family."

"But what about our well-being when we are old? If we have fewer children, how can we be certain that there'll be anyone to take care of us?" asks a fifty-year-old mother of six.

I pause to frame a response, but Nambang answers for me. "I've had ten children, but only five have lived to grow into men and women. That's how it was when I was raising a family. But so much has changed in a generation. The government water and sanitation project has piped clean water into our community for the first time. Children born today are healthier than ever before. Now that we have a health centre in our village, many more babies stay well. We no longer need to have many children in the hope that a few will survive."

Kali, a teenager sporting a bright orange t-shirt, confides, "When I was growing up, my mother was always pregnant or nursing a baby. My older sister has been married for only two years and already her second child is on the way. Like my mother, she often seems tired or ill."

"I'm glad you raised that point, Chia." Turning to the others, I add, "Frequent pregnancy can harm the mother's health as well as the quality of family life."

Chia nods and says, "My fiance, and I are getting married next month. We want to raise a family, but we also want a different kind of life."

"It's good that your young man feels as you do, because many don't," says Rita. Standing, she addresses the group. "Look around this room. Who has come today? Women, that's who, and yet it takes both a man and a woman to make a baby. We must find a way to involve men, to make them understand that planning for and raising a family is not the responsibility of women alone!"

Around the room, heads bob and voices murmur in assent.

"It won't be easy," states Vivian, a middle-aged woman whose toddler plays at her feet. She shakes her head. "At the last village council meeting, some of the men were angry that outsiders were trying to meddle in our private affairs."

"I share your concern," I answer. "In many of the villages I've visited, the men have been slow to come around, but many have eventually." I glance down at my watch. "It's time to break for lunch. I've certainly learned a lot from our discussion, and I hope you have too. When we return, perhaps we can talk about how to bring the whole community, especially husbands, into the discussion."

The women file outside into the bright sunshine, but I notice that Kali hangs back.

"Chia, what can I do for you?"

She gives me a shy smile. "I would like to arrange a time to talk more with you about how to set up an appointment at the health clinic."

Returning her smile, I reach for the appointment book.

Exploring PGR Case Study 1

1. Who is the narrator of this case study and why is she holding this meeting? **[The narrator is a traveling health care worker employed by the Cameroonian government to teach people about family planning.]**
2. Who attends the meeting? **[There are about 15 women of varying ages. Some bring their children.]**
3. Why do some people say that the village can support more people? **[The village has recently built a number of improvements, including a corn mill, roads, and a new school. Some of the villagers feel that these additions should make it possible for families to have more children.]** Why do other people say that the village cannot support more people? **[Some villagers point out that the people in the village depend on the local land for growing their food. There are limits to the amount of food that can be produced on the available land, and overclearing and overworking the land can cause the soil to erode and to lose its fertility.]**
4. How can spacing pregnancies help to produce a healthier, more economically secure family? **[When there is time between births, babies and mothers tend to be healthier. In addition, parents have more time and resources to give to each child. There is more money per child for food, clothing, medical care, and education.]**
5. What are some of the benefits mentioned for having large families? **[A large family can be a sign of prosperity and status. Also, if a family has its own business or farm, children can provide the necessary labor. In addition, when the infant mortality rate is high, parents may choose to have large families to be sure that at least a few children will survive to take care of them in their old age.]** What are some of the benefits to having small families? **[In small families, the mother and children are usually healthier, and a greater percentage of the children live to adulthood. It is less expensive to feed, clothe, house, and educate a small family, so their standard of living can be higher. And when a generation dies, the family lands and wealth will be divided among fewer people, so each child's portion will be larger. If an entire village has small families, there is less demand placed on local environment and natural resources.]**
6. In Christy's opening presentation, she discusses "responsible parenthood" with the women. If you were to give a presentation on "responsible parenthood", how would you define the term and what topics would you cover? **[Answers will vary.]**
7. Christy tells the women that she works with the Ministry of Health. Why might the government want to slow population growth and encourage family planning? **[Answers will vary.]**
8. Vivian tells the group that some of the men "were angry that outsiders were trying to meddle in our private affairs." To what extent is having children a private matter, a public concern, or both? Use examples from the case study and your own experience to explain your answer. **[Answers will vary.]**

9. At the end of the case study, Christy suggests that the group continue their meeting by talking about how to get more of the community, especially husbands, interested in family planning. What are some of the objections people might have to family planning? What are some of the reasons people might support family planning? If you were at this meeting, what strategies would you suggest to bring these two sides together? **[Answers will vary.]**
10. Look at the Data Table and find Cameroon. What is the projected 1995–2010 average annual population growth rate? **[2.9%]** How does this compare with the projected 1995–2010 average annual growth rate for your country? **[Answers will vary.]**
11. Is family planning an issue where you live? Explain. **[Answers will vary.]**

PGR Research and Explore

1. Assume that you are the prime minister of a low-income country in which the population growth rate is 3 percent a year. Your government has adopted a policy of reducing the rate to 2 percent over the next 10 years. Listed below are some activities that could help your country reach that goal. Because of budgetary constraints, you cannot undertake all the activities at once.
 - a. Choose the five activities that you would undertake first and rank them in the order in which you would implement them. Explain why you chose this ranking.
 - Start a campaign of posters, billboards, radio announcements, and newspaper ads that portray small families as desirable.
 - Have the Ministry of Health train more people to provide family planning services in rural health clinics and urban hospitals.
 - Design pre- and in-service training programs for medical personnel to teach them how to provide family planning services.
 - Contract with national celebrities in sports and entertainment to film public service ads in support of family planning.
 - Have the Ministry of Education develop a curriculum for secondary schools about population growth.
 - Provide financial incentives for parents to send their daughters to school.
 - Have the national university do research to determine how to persuade more couples to practice family planning.
 - Enact a law that will raise the taxes of couples who have more than two children.
 - Enact a law that will lower the taxes of couples who have two or fewer children.
 - Have the Department of Industries develop job training programs for women.
 - Use tax revenue to set up a social security fund so retired people will have a small but secure income.
 - b. Are there any activities listed that you would not use? Explain.
 - c. What are three additional activities that you would add to your list? Describe each one and explain how it would fit into your ranking.

2. This activity, which demonstrates how much family size can influence a country's population, is designed to be done in class or with a group of people. If you are doing this activity by yourself, draw it out on a piece of paper.
 - a. Four members of the class form two couples. Couple A and their descendants will always have two surviving children; couple B and their descendants will always have three.
 - b. Couple A selects two members of the class as its children; couple B selects three members of the class as its children.
 - c. The children of couples A and B select members of the class as their spouses. The children of couple A and their spouses are couples C and D; the children of couple B and their spouses are couples E, F, and G.
 - d. Couples C and D each select two members of the class as their children. Couples E, F, and G each select three members of the class as their children. How many children altogether do couples C and D have? Couples E, F, and G?
 - e. Continue the activity through another generation (the fourth); members of the class already selected will have to be selected again. At the end of the generations, there will be eight children who are descendants of couple A and twenty-seven who are descendants of couple B.
 - f. What conclusions can you draw from this exercise?
3. Make a family tree by going back to your great-grandparents on both your mother's and father's sides of the family. To whatever extent possible, list the years in which people were born, were married, and died, as well as their occupations and levels of education. If you do not know all of the information yourself, interview other family members; older relatives are excellent sources. After your family tree is assembled, analyze the data you collected and answer the following questions to the best of your knowledge.

Note: Although one of the objectives of this exercise is to help you become more informed about your own family, if you are unable to collect information from your family, or if your family feels uncomfortable discussing this information, you can interview a neighbor's or friend's family instead.

- a. Do your parents have as many children as your grandparents had? as your great-grandparents had?
- b. Are there differences among the generations in respect to life expectancy?
- c. Are there differences between the sexes in respect to life expectancy?
- d. Did any of your family suffer from diseases that are preventable today?
- e. Does your data suggest any relationship between life expectancy, occupation,

and/or education level and the number of children people had?

- f. How many children would you like to have? Does knowing your family history have any bearing on your decision? Explain.
4. People's decisions about family size affect not only themselves, but also the other people they share resources with. This exercise helps show how changes in population size over time can affect the demand on public services and natural resources. The more information and the more types of information you can collect, the more complete picture you can make, so it is best to do this exercise with a whole class. Because some information may be difficult to find, you may have to settle for estimates, but estimates can still show trends.
- a. Find out what your community's population was ten years ago and what it is today. Has it grown or declined, and by how much?
 - b. With your class, make a list of the services and resources you and your family must share with other members of your community. (Some ideas may include: schools, roads, public transportation, water, sewerage systems, electricity, telephones, fuel, or parks.)
 - c. Break up into small groups, and divide the list equally among the groups. With your small group find evidence of how demand for your group's resources or services has changed over the past ten years. You may find that ten years ago, a particular service did not even exist, or that a resource that was widely used ten years ago is not around today. Try to gather information from a variety of sources, such as local government offices, interviews with older family members and neighbors, photographs, libraries, newspaper clippings and archives, and utility companies or coops.
 - d. With your small group, present your findings to the class in a short written or oral report.
 - e. As a whole class compare the findings with the population trends. As population has grown or declined, which resources and services have grown or declined with it? Which have not?
 - f. Individually, use the evidence your class has collected to write a short essay answering the question: If your community's population continues to grow or decline over the next ten years as it has in the past ten years, what additional changes do you expect to see in the demand for resources and services? Is this change sustainable? Explain.



World Bank

Glossary

Access to safe water.

Measured by the number of people who have a reasonable means of getting and adequate amount of clean water, expressed as a percentage of the total population. It reflects the health of a country's people and the country's ability to collect, clean, and distribute water. In urban areas "reasonable" access means there is a public fountain or water spigot located within 200 meters of the household. In rural areas, it implies that members of the household do not have to spend excessive time each day fetching water. Water is safe or unsafe depending on the amount of bacteria in it. An adequate amount of water is enough to satisfy metabolic, hygienic, and domestic requirements, usually about 20 liters (about 4 gallons) per person per day.

Access to sanitation.

Refers to the share of the population with at least adequate excreta disposal facilities that can effectively prevent human, animal, and insect contact with excreta. Suitable facilities range from simple but protected pit latrines to flush toilets with sewerage. To be effective, all facilities must be correctly constructed and maintained.

Adult illiteracy rate.

The proportion of the population over age fifteen who cannot, with understanding, read and write a simple statement about their everyday life and do simple mathematical calculations.

Bilharzia.

A life-threatening parasitic disease caused by a worm that lives in a host snail. Humans can become infected when they come in contact with water in ponds and rivers where the snail lives. Occurs most often in tropical regions. Also called schistosomiasis.

Billion.

One billion equals 1,000,000,000 or one thousand million.

Biodiversity.

The variability among living organisms from all sources, including land based and aquatic ecosystems, and the ecosystems of which they are part. These include diversity within species, between species, and of ecosystems. Diversity is the key to ensuring the continuance of life on Earth. It is also a fundamental requirement for adaptation and survival and continued evolution of species.

Birth rate.

The number of births in a year per 1,000 population.

Capital.

The money or wealth needed to produce goods and services. See also human capital and physical capital.

Carrying capacity. The population that an area will support without undergoing environmental deterioration.

Cholera.

Any of several diseases of man and domestic animals usually marked by severe gastrointestinal symptoms.

Commodity.

See primary goods or products.

Death rate.

The number of deaths in a year per 1,000 population.

Deforestation.

The process of clearing of forests. Since trees root systems are essential for keeping top soil in place, deforestation can bring about soil erosion. In addition, loss of trees is said to contribute to global warming because trees reduce greenhouse gases and provide shade.

Demography.

The statistical study of human populations, especially with reference to size and density, distribution and vital statistics.

Desertification.

The process of becoming desert (as from land management or climate change).

Developing country.

Low- and middle-income countries in which most people have a lower standard of living with access to fewer goods and services than do most people in high-income countries. There are currently about 125 developing countries with populations over 1 million; in 1995, their total population was more than 4.7 billion.

Diarrheal illness.

A disease that affects the intestines. The victims of this disease, frequently children in low- and middle-income countries, may die from the resulting dehydration.

Economic growth/development.

The process by which a country increases its ability to produce goods and services.

Ecosystem.

A community of plants and animals existing in an environment that supplies them with water, air, and other elements they need for life.

Ecosystem integrity.

The extent to which the interrelationships among and within ecosystems remain intact so that the number and variety of living organisms can be maintained.

Elephantiasis.

A disease, often found in tropical countries, in which parts of the human body become enlarged. It is caused by small roundworms that are injected into the body by mosquitoes.

Environment.

The complex set of physical, geographic, biological, social, cultural and political conditions that surround an individual or organism and that ultimately determines its form and nature of its survival.

Export.

To sell goods or services to a buyer outside your country.

Factors of production.

Input used to produce goods and services, for example, capital or labor.

Family planning.

A health service that helps couples decide whether to have children, and if so, when and how many.

Fertility rate (total).

The average number of children a woman will have during her lifetime. The total fertility rate in developing countries is between three and four; in industrial countries it is less than two.

Goods and services.

Things that are produced by a country's economy. Examples of goods include food, clothing, machines, and new roads. Examples of services include those of doctors, teachers, merchants, tourist agents, construction workers, and government officials.

GNP (gross national product).

The value (in U.S. dollars) of a country's final output of goods and services in a year. The

value of GNP can be calculated by adding up the amount of money spent on a country's final output of goods and services, or by totaling the income of all citizens of a country including the income from factors of production used abroad.

GNP per capita.

The dollar value of a country's final output of goods and services in a year (its GNP), divided by its population. It reflects the average income of a country's citizens. Knowing a country's GNP per capita is a good first step toward understanding the country's economic strengths and needs.

GNP per capita growth rate.

The change in GNP per capita over a period, expressed as a percentage of GNP per capita at the start of the period.

Growth rate.

The change (increase, decrease, or no change) in an indicator over a period of time, expressed as a percentage of the indicator at the start of the period. Growth rates contain several sets of information. The first is whether there is any change at all; the second is what direction the change is going in (increasing or decreasing); and the third is how rapidly that change is occurring. For example, if a country's GNP growth rate for a particular year is more or less than zero, there has been a change in the amount of goods and services produced in that year. If the GNP growth rate is positive, the country is producing more goods and services at the end of the year than at the beginning. If the GNP growth rate is negative, the country is producing fewer goods and services than at the beginning of the year. Note that a change in GNP growth rate from 2% one year to 1% the next year does not mean that the total production of goods and services has decreased. As long as the growth rate is positive, the GNP is growing. The only time the production of goods and services has actually decreased is when the GNP growth rate is negative.

High-income country.

A country having an annual gross national product (GNP) per capita equivalent to \$9,386 or greater in 1995. Most high-income countries have an industrial economy. There are currently about 26 high-income countries in the world with populations of one million people or more. Their combined population is about 0.9 billion, less than one-sixth of the world's population.

Hookworm.

An intestinal parasite found in tropical and subtropical regions. It passes through the skin, especially bare feet, and is spread by unsanitary conditions.

Human capital.

People and their ability to be economically productive. Education, training, and health care can help increase human capital. See also capital and physical capital.

Hygiene.

Practices, such as frequent hand washing, that help ensure cleanliness and good health.

Import.

To buy goods and services from another country.

Indicator.

A numerical measure of quality of life in a country. Indicators are used to illustrate progress of a country in meeting a range of economic, social, and environmental goals. Since indicators represent data that have been collected by a variety of agencies using different collection methods, there may be inconsistencies among them.

Industrial country.

A country in which historically the greatest part of output has been accounted for by industry. However, the term is widely used to signify high-income economies.

Industrial waste.

Material—for example, certain chemicals or even very hot water—left over from a manufacturing process. It can be harmful sometimes and may pollute the water and the environment if not treated and/or disposed of properly.

Infant mortality rate.

The number of infants, out of every 1,000 babies born in a given year, who die before reaching age 1. The lower the rate, the fewer the infant deaths, and generally the greater the level of health care available in a country.

Informal economy.

The exchange of goods and services not accurately recorded in government figures and accounting. The informal economy, which is generally untaxed, commonly includes goods and services including day care, tutoring, or black market exchanges.

Investment.

Money spent now in order to make the economy grow and have more money—or goods and services—later.

Life expectancy at birth.

The average number of years newborn babies can be expected to live based on current health conditions. This indicator reflects environmental conditions in a country, the health of its people, the quality of care they receive when they are sick, and their living conditions.

Literacy.

The ability to read and write a simple statement about one's everyday life and do simple mathematical calculations.

Low-income country.

A country having an annual gross national product (GNP) per capita equivalent to \$765 or less in 1995. The standard of living is lower in these countries; there are few goods and services; and many people cannot meet their basic needs. There are currently about 58

low-income countries with populations of 1 million or more. Their combined population is almost 3.2 billion.

Manufactured products.

Goods--for example, shoes, trucks, paper, radios, electric motors, and canned fruit--that are produced from raw materials by hand or by machine.

Middle-income country.

A country having an annual gross national product (GNP) per capita equivalent to more than \$765 but less than \$9,386 in 1995. The standard of living is higher than in low-income countries, and people have access to more goods and services, but many people still cannot meet their basic needs. There are currently about 67 middle-income countries with populations of one million or more. Their combined population is more than 1.5 billion.

Natural resource accounting.

The process of adjusting national accounts such as GNP to reflect the environmental costs of economic production. Although methods are still being developed, natural resource accounting strives to determine the costs of depleting natural resources and damaging the environment.

Natural resources.

Materials that occur in nature and are essential or useful to humans, such as water, air, land, forests, fish and wildlife, topsoil, and minerals.

Physical capital.

Things, such as machinery, tools, equipment, furniture, parts, and buildings, that are needed to produce goods and services. See also capital and human capital.

Population growth rate (average annual).

The increase in a country's population during one year, divided by the population at the start of that year. It reflects the number of births and deaths during the period and the number of people moving to and from a country. The average annual population growth rates for a period of years provide a better picture than do rates for a single year. In 1995 total world population was more than 5.6 billion, and the average world population growth rate was between 1980 and 1995 1.6.

Population momentum.

The tendency for population growth to continue beyond the time that replacement-level fertility has been achieved because of a relatively high concentration of people in the childbearing years. For example, the absolute numbers of people in developing countries will continue to increase over the next several decades even as the rates of population growth will decline. This phenomenon is due to past high fertility rates which results in a large number of young people. As these youth grow older and move through reproductive ages, the greater number of births will exceed the number of deaths in the older populations.

Population projections.

Demographers make predictions about future population based on trends in fertility, mortality, and migration.

Prevalence of malnutrition under age 5.

The percentage of children under five years of age whose health and growth are jeopardized by lack of proper food.

Primary goods or products.

Goods--for example, iron ore, diamonds, wheat, copper, oil, or coffee--that are used or sold as they are found in nature. They are also called commodities.

Primary health care.

Health services, including family planning, clean water supply, sanitation, immunization, and nutrition education, that are designed to be affordable for both the poor people who receive the services and the governments that provide them; the emphasis is on preventing disease as well as curing it.

Purchasing power parity (PPP).

A method of measuring the relative purchasing power of different countries' currencies over the same types of goods and services. Because goods and services may cost more in one country than in another, PPP allows us to make more accurate comparisons of standards of living across countries. PPP estimates use price comparisons of comparable items but since not all items can be matched exactly across countries and time, the estimates are not always "robust."

Renewable.

Able to be replaced or replenished, either by the earth's natural processes or by human action. Air, water, and forests are often considered to be example of renewable resources. However, due to local geographic conditions and costs involved, strong arguments can be made that water may not be a completely renewable resource in some parts of the world, especially in developing countries or in areas with limited groundwater supplies. Minerals and fossil fuels are examples of non-renewable resources.

Replacement level.

The fertility level at which couples have the number of children required to replace themselves, this is about two children. When the replacement level is reached, population growth will stabilize in time. (See definitions for Population Momentum and Transition.)

Resources.

The machines, workers, money, land, raw materials, and other things that a country can use to produce goods and services and to make its economy grow. Resources may be renewable or nonrenewable. Countries must use their resources wisely to ensure long term prosperity.

Sanitation.

Maintaining clean, hygienic conditions that help prevent disease through services such as garbage collection and wastewater disposal.

Sanitation facilities.

Basic sewerage and drainage systems that collect waste water and then clean and redistribute it.

Sewage.

Refuse liquids or waste matter carried off by sewers.

Sewerage.

A system of sewers or drainage pipes.

Silting.

The process whereby waterways become choked by mud and soil that has washed off the land through erosion.

Social services.

Services generally provided by the government that help improve people's standard of living; examples are public hospitals and clinics, good roads, clean water supply, garbage collection, electricity, and telecommunications.

Sources of water.

House connection/yard tap: Piped water from the public water distribution system that reaches the home or yard. When people have house connections, they usually have indoor plumbing as well; if they have yard taps, they have to go outside to get water. Shallow well: A well dug on public or private property for public consumption. Public wells usually provide water for little or no cost; water from private wells is usually more expensive. Shallow wells are not always reliable sources of water because they can become contaminated by run off in the rainy season or dry up in the dry season. Yard well: A shallow well in a yard usually intended for private use. Standpost: An outside tap to which a number of households can go to get water. Public standposts are connected to the public water distribution system and controlled by the water company. Private standposts are not connected to the public water distribution system nor controlled by the water company. Private borehole and electric pump: A very deep well drilled into the ground using specialized machinery. Boreholes are used when the water is far below the surface or when the ground is too hard to dig a well by conventional means. Because they are so deep, they require an electric pump to bring water to the surface.

Sustainable development.

Development that meets the needs of the people today without compromising the ability of future generations to meet their own needs.

Total fertility rate.

See fertility rate (total).>

Transition.

Refers to the demographic change that is occurring in developing countries as they move to lower rates of fertility and mortality. Many factors contribute to transition including: improved health services, greater access to education and improved social and economic conditions. Several developing countries in Asia are now in the later stages of transition, while many countries in Sub-Saharan Africa are in the early stages of transition. Demographic transition is complete when fertility has reached replacement level, which is the case in most industrial countries.

Urbanization.

The process by which a country's population changes from primarily rural to urban. It is caused by the migration of people from the countryside to the city in search of better jobs and living conditions.

Wastewater.

Water that has been used and is no longer clean.

Wastewater treatment.

The process of removing pollutants from water that has been used. There are different stages of treatment. Primary sewage treatment involves screening the water to remove the largest solids from wastewater and then letting the water sit in settling tanks so that the smaller solids and particles sink to the bottom. Secondary treatment involves another stage in which microbes added to the wastewater to eat the biological pollutants, or the wastewater is put through another filter. Then the treated water is disinfected and released back into nature. The more steps included in the treatment, the more expensive the process.

Watershed.

The specific land area that drains water into a river system or other body of water.